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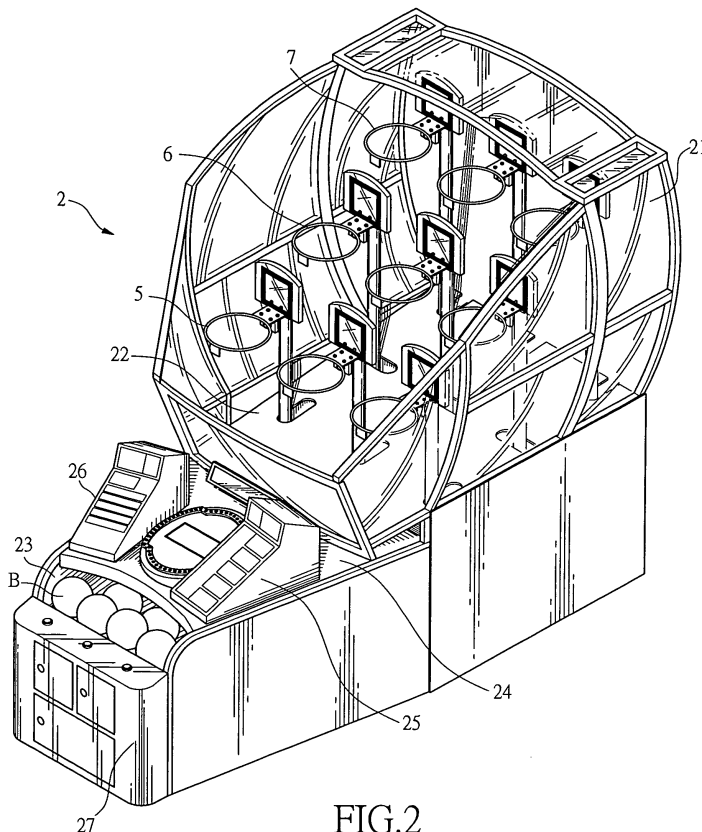
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AL BA HR MK RS(71) Applicant: **Chin, Chih-Kuo****Sanmin District****Kaohsiung City 807 (TW)**(72) Inventor: **Chin, Chih-Kuo****Sanmin District****Kaohsiung City 807 (TW)**(74) Representative: **Horak, Michael****Beukenberg Rechtsanwälte****Roscherstrasse 12****30161 Hannover (DE)**(54) **Structure of ball throw game device**

(57) A ball throw game device (2) includes a chassis (3), a movable rack (4), a first rim set (5), a second rim set (6), and a third rim set (7). The movable rack (4) has a power unit (32) that drives the movable rack (4) to move in front-rear direction. The first rim set (5) is movable in front-rear direction by being driven by a power unit (46).

The second rim set (6) is movable in left-right direction by being driven by a power unit (47). The third rim set (7) is movable in up-down direction by being driven by a power unit (48). Thus, ball shot skill of a player can be enhanced by the movements of rim hoop rings carried by the first (5), second (6), and third (7) rim sets in the front-rear, left-right, and up-down direction.

**FIG.2****EP 2 014 338 A1**

Description

BACKGROUND OF THE INVENTION

(a) Technical Field of the Invention

[0001] The present invention relates to a ball throw game device, and in particular to a ball throw game device having a back stop that is movable in front-rear direction, left-right direction, and up-down direction.

(b) Description of the Prior Art

[0002] A ball throw game device is commonly seen in a playground or an entertainment court. A conventional ball throw game device, as shown in Figure 1 of the attached drawings, generally designated at 1, comprises a chassis 10 in which electronic control circuits (not shown) are provided; an inclined ball supply chute 11 formed in the chassis 10; a backboard 12 that constitutes in part a back stop structure and arranged upright at an internal end of the chute 11; a rim hoop ring 13, with a net attached thereto, mounted to a front face of the backboard 12; a score display 14 that is located in front of the rim hoop ring 13 and above the chute 11 for display of the score won by a player; a ball blockade (not shown) arranged in the chute 11 and controlled by the electronic control circuit to close/open the chute 11 for selectively blocking a plurality of balls 15, such as basketballs, that are fed through the chute 11 until the chute 11 is opened; and a coin slot 16 for receiving coins that activate the operation of the ball throw device.

[0003] The rim hoop ring 13 is provided with a sensor (not shown) that is electrically connected to the electronic control circuit for detecting a ball passing through the rim hoop ring 13. The electronic control circuit is operated under the control of a time delay device (not shown), which maintains the activation of the electronic control circuit unit a preset time period determined by the time delay device is used up, when the ball throw game device is de-activated and a cycle of ball throw process is completed. To start another cycle of ball throw, new coins are needed to deposit into the coin slot 16 to re-activate the game device.

[0004] With such a construction, a user may stand in front of the game device 1 and deposit a sufficient number of coins into the coin slot 16, and then the electronic control circuit inside the chassis 10 is activated to open the ball blockade within the chute 11, thereby releasing the balls 15 that are originally confined behind the ball blockade, so that balls 15 roll to the user. At the same time, the electronic control circuit activates and resets the display 14 to a ready-to-count condition. Thereafter, the user may start to pickup and throw the ball 15 to the rim hoop ring 13. Each time a ball 15 passes the rim hoop ring 13, the sensor mounted on the rim hoop ring 13 sends out a signal to the electronic control circuit, which, in response to the signal, shows up a score on the display 14. This

process continues until the time period set by the time delaying device is up. This completes a cycle of ball throw process. The display 14 may at that time show up the total score gained and the counts of ball shot. A new cycle can be started again by putting coins into the coin slot 16.

[0005] The conventional ball throw device 1 is constructed with a fixed rim hoop ring 13, which is maintained at a fixed altitude with respect to the chassis 11 and is also kept stationary. Thus, an industrious player, after several times of practicing, may soon get familiar with ball throw trajectories that lead the ball to pass through the rim hoop ring 13 due to the fixed altitude and distance of the rim hoop ring 13. Consequently, the shot rate can be significantly improved and score gained can be increased quickly. This makes the game no longer challenging to the players and the fun of playing the ball throw game is lessened.

[0006] Thus, the present invention is aimed to provide a ball throw game device that overcomes the drawbacks of the conventional ball throw game devices.

SUMMARY OF THE INVENTION

[0007] The primary purpose of the present invention is to provide a ball throw game device that overcomes the drawback of the conventional game device that rim hoop rings for ball shot are fixed, thereby lacking challenge and entertainment effect.

[0008] The technique solution of the present invention for solving the above problem resides in that a ball throw game device comprises containment walls arranged on opposite sides and at a front side and an inclined board is arranged between the containment walls to form a ball collection zone. An inclined top is provided above the ball collection zone and supports a data display and a game stage display to provide indication or display of data to a player so that the player may get aware of the score that he or she gains and the types or modes of game that is being carried out. A coin slot is formed below the ball collection zone.

[0009] The technique solution of the present invention also resides in that a ball throw game device comprises a chassis, a movable rack, a first rim set, a second rim set, and a third rim set. The movable rack has a power unit that drives the movable rack to move in front-rear direction. The first rim set is movable in front-rear direction by being driven by a power unit. The second rim set is movable in left-right direction by being driven by a power unit. The third rim set is movable in up-down direction by being driven by a power unit. Thus, ball shot skill of a player can be enhanced by the movements of rim hoop rings carried by the first, second, and third rim sets in the front-rear, left-right, and up-down direction. As such, practicing of ball shot and entertainment of the game can be significantly enhanced.

[0010] The foregoing object and summary provide only a brief introduction to the present invention. To fully ap-

precipitate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0011] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

Figure 1 is a perspective view of a conventional ball throw game device;

Figure 2 is a perspective view of a ball throw game device constructed in accordance with the present invention;

Figure 3 is a perspective view of a chassis and a movable rack, in a separated manner, of the game device of the present invention;

Figure 4 is an exploded view of the movable rack of the game device of the present invention, together with first and second rim sets;

Figure 5 is an assembled view of the movable rack and the first and second rim sets of the game device of the present invention;

Figure 6 is an exploded view of the first rim set of the game device of the present invention;

Figure 7 is an exploded view of a back stop of the first rim set of the game device of the present invention;

Figure 8 is an exploded view of a second rim set of the game device of the present invention;

Figure 9 is an exploded view of a third rim set of the game device of the present invention; and

Figure 10 is a perspective view of the third rim set of the game device of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] The following descriptions are of exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0014] With reference to the drawings, and in particular to Figure 2, which illustrates a perspective view of a ball throw game device constructed in accordance with the present invention, generally designated at 2, the ball throw game device 2 comprises containment walls 21 on opposite sides and a front side. The containment walls 21 can be made of transparent or light-transmitting boards. Among the containment walls 21, an interior space is formed and is further delimited by an inclined board 22 that guides ball B toward a ball collection zone 23. An inclined top 24 is arranged above the ball collection zone 23 and a data display 25 and a game stage display 25 are arranged on the top 24 to indicate the score gained by a player and the operation status to the player. A coin slot 27 is provided below the ball collection zone 23.

[0015] Also referring to Figures 3 and 4, inside structure of the ball throw game device 2 comprises at least a chassis 3, a movable rack 4, a first rim set 5, a second rim set 6, and a third rim set 7.

[0016] The chassis 3 is constructed as a framework. A first slide track set 31 comprises two first slide tracks provided on opposite sides and arranged symmetrically. In the embodiment illustrated, the first slide tracks 31 may comprise linear rails. A power unit 32 is provided on the framework of the chassis 3 and is in operative coupling with the movable rack 4.

[0017] The movable rack 4 comprises two side bars 41 that are arranged between the first slide tracks 31. Each side bar 41 is provided with a fixing plate 411, to which a first slide block 311 of each first slide track 31 and a padding board 312 are mounted. By being driven by the power unit 32, the slide block 311 mounted to the movable rack 4 is moved along the slide track 31 in a front-rear direction. A second slide track set 42, which may comprise two second slide tracks, is mounted on the movable rack 4. A detection plate 43, which is detectable by a detection device 33 mounted to the chassis 3, is mounted to the movable rack 4. The detection device 43 comprises sensors 331, 332. When the sensor 331 of the detection device 33 detects the detection plate 43, the power unit 32 moves the movable rack 4 in a frontward direction, and when the sensor 332 of the detection device 33 detects the detection plate 43, the power unit 33 moves the movable rack 4 in a rearward direction and thus the movable rack 4 is reciprocally movable in the frontward and rearward directions in this way. The movable rack 4 is also provided with a third slide track set 44, a crossbar 45, and a power unit 46.

[0018] Also referring to Figure 3, 6, and 7, the first rim set 5 comprises a movable base 51, which forms on an underside thereof at locations close to opposite ends fixing plates 511 respectively, each secured to slide blocks 421 and padding plates 422 of each second slide track 42. A number of cylindrical sleeves 52 are formed on the movable base 51 for each receiving insertion of a support stalk 53. Each support stalk 53 supports a backboard 54, a rim hoop ring 55, and a bracket 56, as shown in Figure

6. The backboard 54 is secured to the bracket 56 by threaded fasteners. The rim hoop ring 55 forms an extension plate 551 that is secured to the bracket 56. The bracket 56 itself is fixed to an upper end of the stalk 53. A mirror-surfaced reflection detector 561 is mounted below the bracket 56 and a tab 552 is mounted to the rim hoop ring 55 at a location exactly opposite to the mirror-surfaced reflection detector 561. A reflective pad 553 is mounted to the tab 552. The movable base 51 of the first rim set 5 is operatively coupled to the power unit 46 so that the power unit 46 drives the movable base 51 to reciprocates along the second slide tracks 42 in the front-rear direction. The fixing plate 511 is provided with a detection plate 57 that is detectable by sensors 341, 342 of a detection device 34 mounted on the chassis 3.

[0019] Referring to Figures 3 and 8, the second rim set 6 comprises a movable bar 61 that is movably mounted on a third slide track set 44 of the movable rack 4. The movable bar 61 forms on an underside thereof at locations close to opposite ends fixing plates 611 that are secured to slide blocks 441 and padding plates 442 of the third slide track set 44. A plurality of cylindrical sleeves 62 is formed on the movable bar 61 for each receiving insertion of a support stalk 63. The movable rack 4 is further provided with a power unit 47 that is operatively coupled to the movable bar 61 so that the power unit 46 drives the movable bar 61 to move in rightward/leftward direction along the third slide track set 44. The movable bar 61 is provided with a detection plate 64 that is detectable by sensors 351, 352, 353 of a detection device 35 mounted on the chassis 3. The cylindrical sleeves 62 of the movable bar 61 receive and support the support stalks 63 and each support stalk 63 supports a backboard 65, a rim hoop ring 66, and a bracket 67. The backboard 65, the rim hoop ring 66, and the bracket 67 are respectively of the same structures as those of the backboard 54, the rim hoop ring 55, and the bracket 56 of the first rim set 5 so that no further details are needed herein.

[0020] Also referring to Figures 9 and 10, the third rim set 7 comprises a plurality of third support stalks 71 mounted to the crossbar 45 of the movable rack 4. An upper end of each support stalk 71 is movably fit into a movable sleeve 72 and the sleeve 72 supports a backboard 73, a rim hoop ring 74, and a bracket 75. The backboard 73, the rim hoop ring 74, and the bracket 75 are respectively of the same structures as those of the backboard 54, the rim hoop ring 55, and bracket 56 of the first rim set 5 so that no further details are needed herein. The third rim set 7 further comprises a power unit 48 mounted to the crossbar 45. The power unit 48 is operatively coupled to a shaft 481 having an upper end portion forming a threaded rod 482. A plurality of nut members 483 is fit over and threadingly engages the threaded rod 482 and is fixed to the sleeve 72. A plurality of bearings 484 are mounted to the shaft 481 and are fixed to support stalk 71. The sleeve 72 is provided with a long rod 76 having a lower end to which a detection plate 77 is mounted. The detection plate 77 is detectable by sensors 361,

362 of a detection device 36. When the power unit 48 is actuated, the shaft 481 and the threaded rod 481 are driven to rotate and the threaded rod 481, due to the threading engagement with the nut members 483, causes the sleeve 72 to move in up and down directions.

[0021] To operate the ball throw game device, a player puts a sufficient number of coins into the coin slot 27 and the electronic control circuit of the game device 2 is activated, which starts the data display 25 in a reset condition for being ready to count. The game thus starts and according to previous settings of the electronic control circuit, with the detection plate 57 of the movable base 51 of the first rim set 5 being detectable by the sensors 341, 342 of the detection device 34, the movable base 51 is driven by the power unit 46 to move reciprocally along the second slide tracks 42 in the front-rear direction. When ball shot for the first rim set 5 is completed, the second rim set 6, with the movable bar 61 being detectable by the sensors 351, 352, 353 of the detection device 35 that is mounted to the chassis 3, is driven by the power unit 47 to move reciprocally along the slide tracks 44 in the left-right direction. When the ball shot for the second rim set 6 is completed, the power unit 48 of the third rim set 7 is activated and the shafts 481 and the threaded rods 482 are driven to rotate, whereby the threaded rods 482 cause the sleeves 72 to move reciprocally in the up-down direction. Finally, the first rim set 5, the second rim set 6, and the third rim set 7 are together moved with the movable rack 4 to enhance the difficult of ball shot and the challengeability and amusement of the game.

[0022] Further, if desired, the backboards 54, 65, 73 of the game device 2 of the present invention can be made of clear or transparent or light-transmitting material, such as clear acrylic board, or can be made of a light guide board cooperating with a lighting source, such as cold-cathode tube or fluorescent cold cathode lamp, to generate different lighting visual effect. In this respect, the lighting source can be electrically connected to and controlled by the electronic control circuit so that lighting of the backboards is controlled in a desired fashion to for example indicate a player to proceed with the game and thus enhancing interesting of the game.

[0023] In addition, in practicing the present invention, the first rim set 5, which in the illustrated embodiment is set at a front location with respect to the other rim sets 6, 7, can be alternatively made movable in the left-right direction, while the second rim set 6 that is set between the first and third rim sets 5, 7 in the front-rear direction is alternatively made movable in the front-rear direction.

[0024] The effectiveness of the game device 2 of the present invention resides in that a plurality of rim sets is included, among which the first rim set 5 is made movable in the front-rear direction in a controlled manner, the second rim set 6 is movable in the left-right direction similarly in a controlled manner, and the third rim set 7 is made movable in the up-down direction also in a controlled manner, and all the rim sets 5, 6, 7 may be moved to-

gether with the movable rack 4 in the front-rear direction, and in addition, indication of ball shot can be arbitrarily provided to a player, whereby simulation of ball shot at different angles, different altitudes, and different distances can be done to enhance the difficult of ball shot and entertainment for ball shot.

[0025] Although the present invention has been described with reference to the preferred embodiment thereof, it is apparent to those skilled in the art that a variety of modifications and changes may be made without departing from the scope of the present invention which is intended to be defined by the appended claims.

[0026] It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

[0027] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

Claims

1. A ball throw game device comprising containment walls arranged on opposite sides and a front side with an inclined board arranged between the containment walls to form a ball collection zone, the game device further comprising:

a chassis having a first slide track set and a power unit;

a movable rack mating the first slide track set and movable in front-rear direction by being driven by the power unit of the chassis, the movable rack supporting a second slide track set, a third slide track set, and a plurality of power units and a crossbar;

a first rim set having a movable base mating the second slide track set and operatively coupled to one of the power units of the movable rack, the first rim set comprising a plurality of support stalks each supporting a first backboard and a first rim hoop ring;

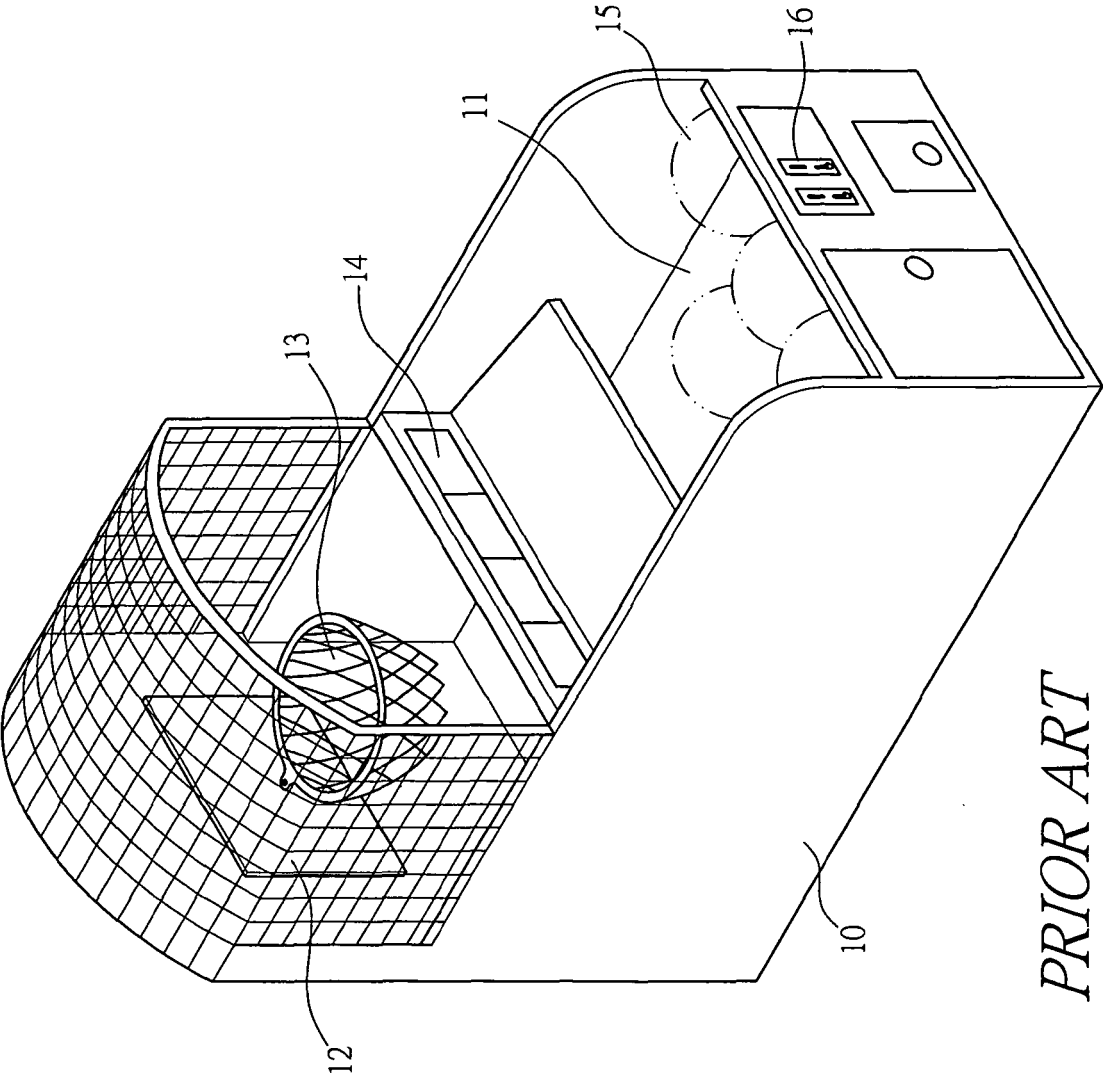
a second rim set having a movable bar mating the third slide track set and operatively coupled to another one of the power units of the movable rack, the second rim set comprising a plurality of second stalks each supporting a second backboard and a second rim hoop ring; and

a third rim set comprising a plurality of third support stalks mounted to the crossbar of the movable rack, each third support stalk being movably

bly mounted with movable sleeve, the third support stalk being operatively coupled to a power unit through a shaft, the movable sleeve supporting a third backboard and a third rim hoop ring; and

wherein the first rim set, the second rim set, the third rim set are driven by the power units of the movable rack to move in the front-rear direction, the left-right direction, and an up-down direction respectively, and wherein the first, second, and third rim sets are selectively moved with the movable rack to move simultaneously in front-rear direction.

2. The ball throw game device as claimed in Claim 1, wherein the first, second, and third slide track set comprise linear rails.
3. The ball throw game device as claimed in Claim 1, wherein the movable base of the first rim set is provided with fixing plates at opposite ends thereof
4. The ball throw game device as claimed in Claim 1, wherein the movable bar of the second rim set is provided with fixing plates at opposite ends thereof.
5. The ball throw game device as claimed in Claim 1, wherein the backboard is made of clear acrylic board or a light guide board.
6. The ball throw game device as claimed in Claim 5, wherein the backboard is provided with a florescent cold cathode lamp.
7. The ball throw game device as claimed in Claim 1, wherein the first rim set is movable in left-right direction.
8. The ball throw game device as claimed in Claim 1, wherein the second rim set is movable in front-rear direction.
9. The ball throw game device as claimed in Claim 1, wherein the shaft of has a threaded upper section forming a threaded rod.
10. The ball throw game device as claimed in Claim 1, wherein the containment boards are light-transmittable.



PRIOR ART
FIG.1

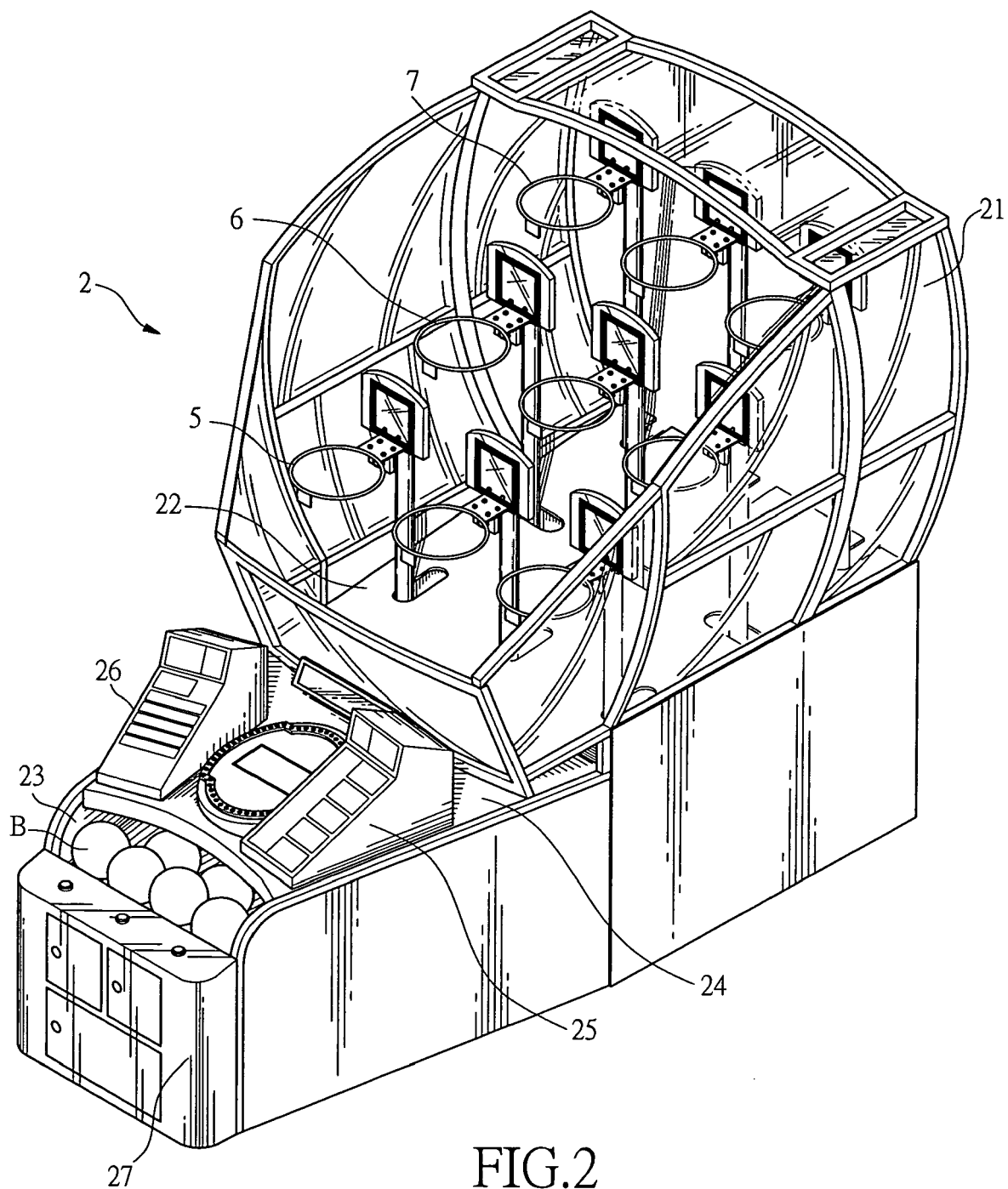


FIG. 2

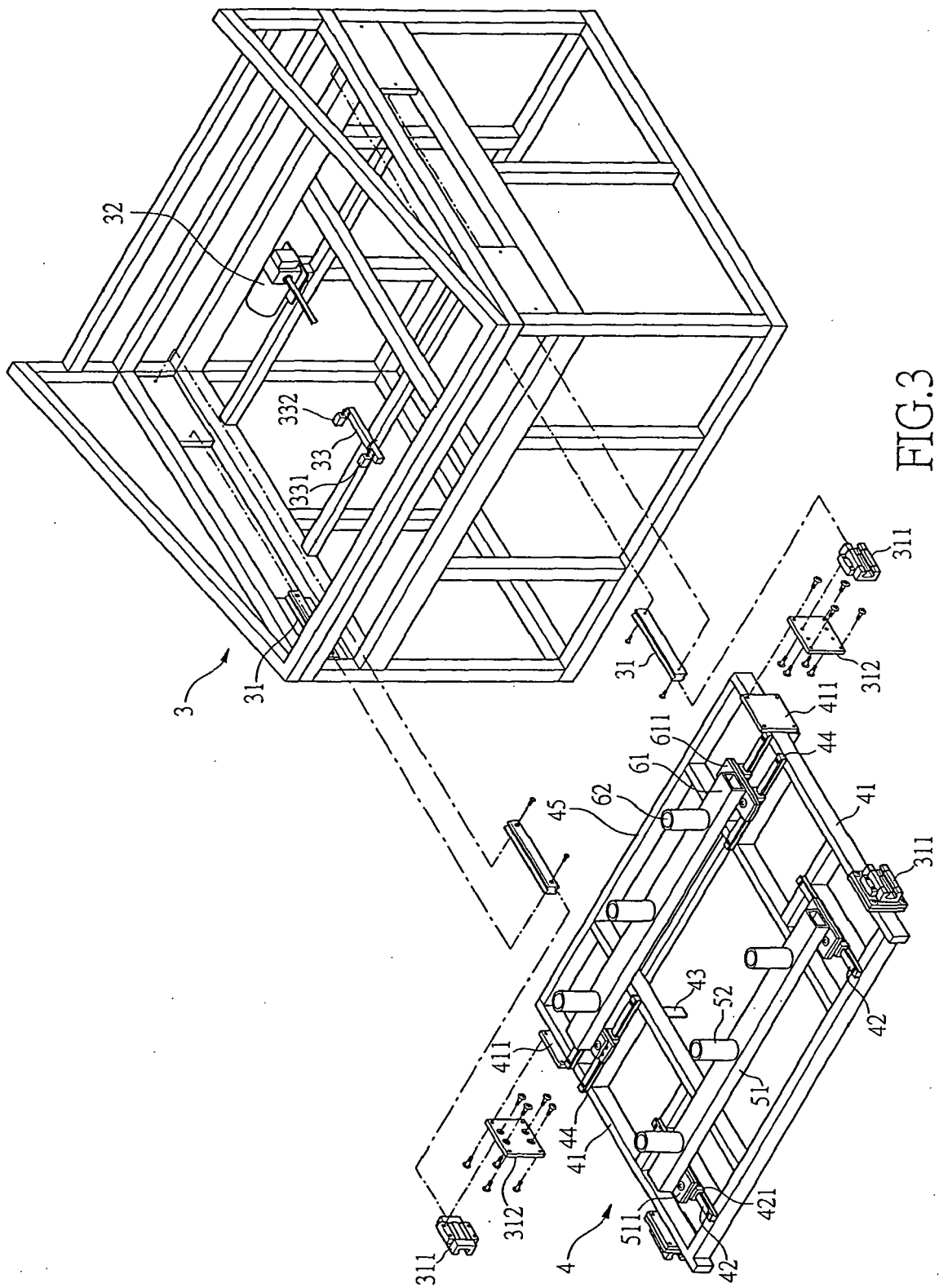


FIG. 3

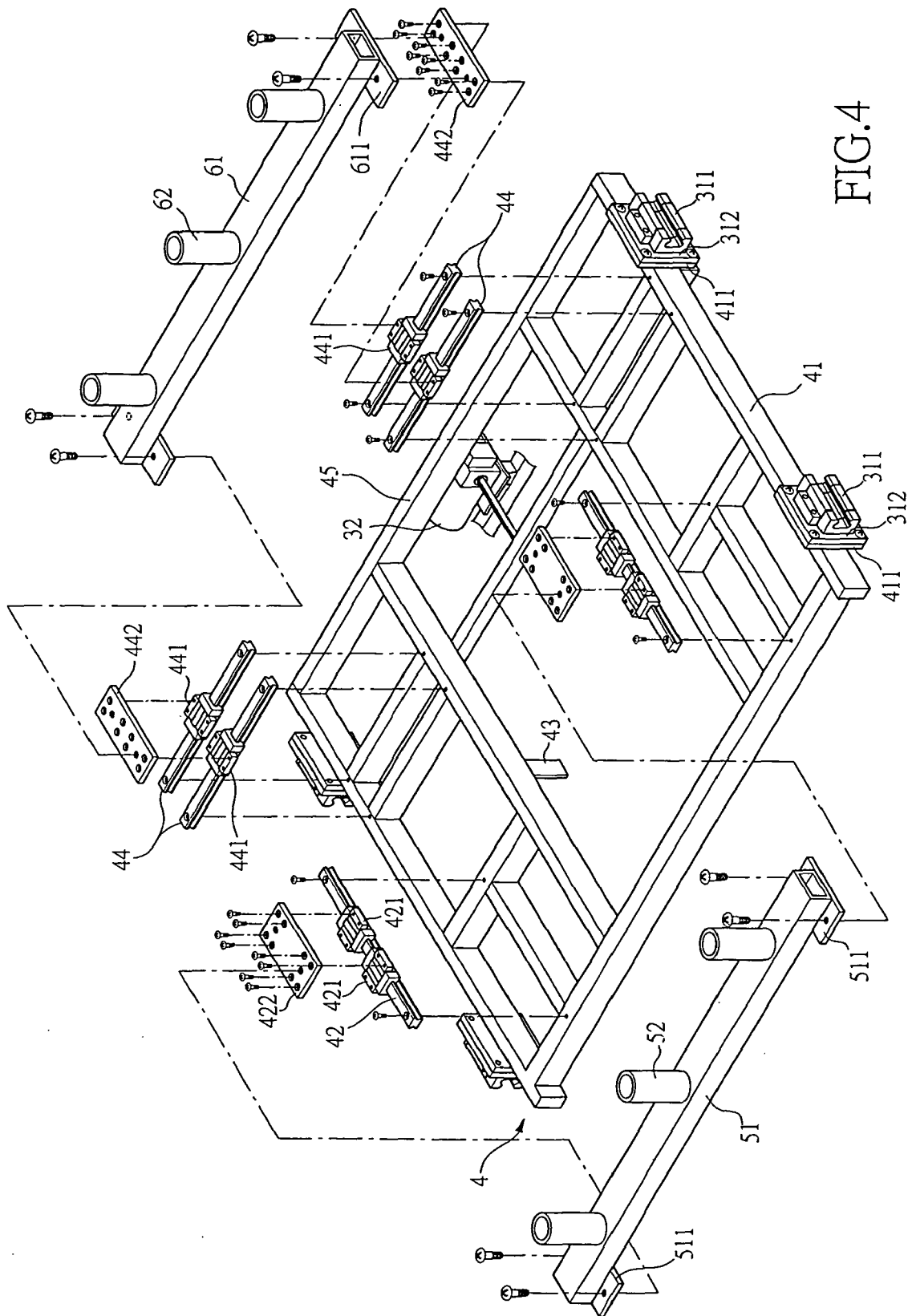


FIG. 4

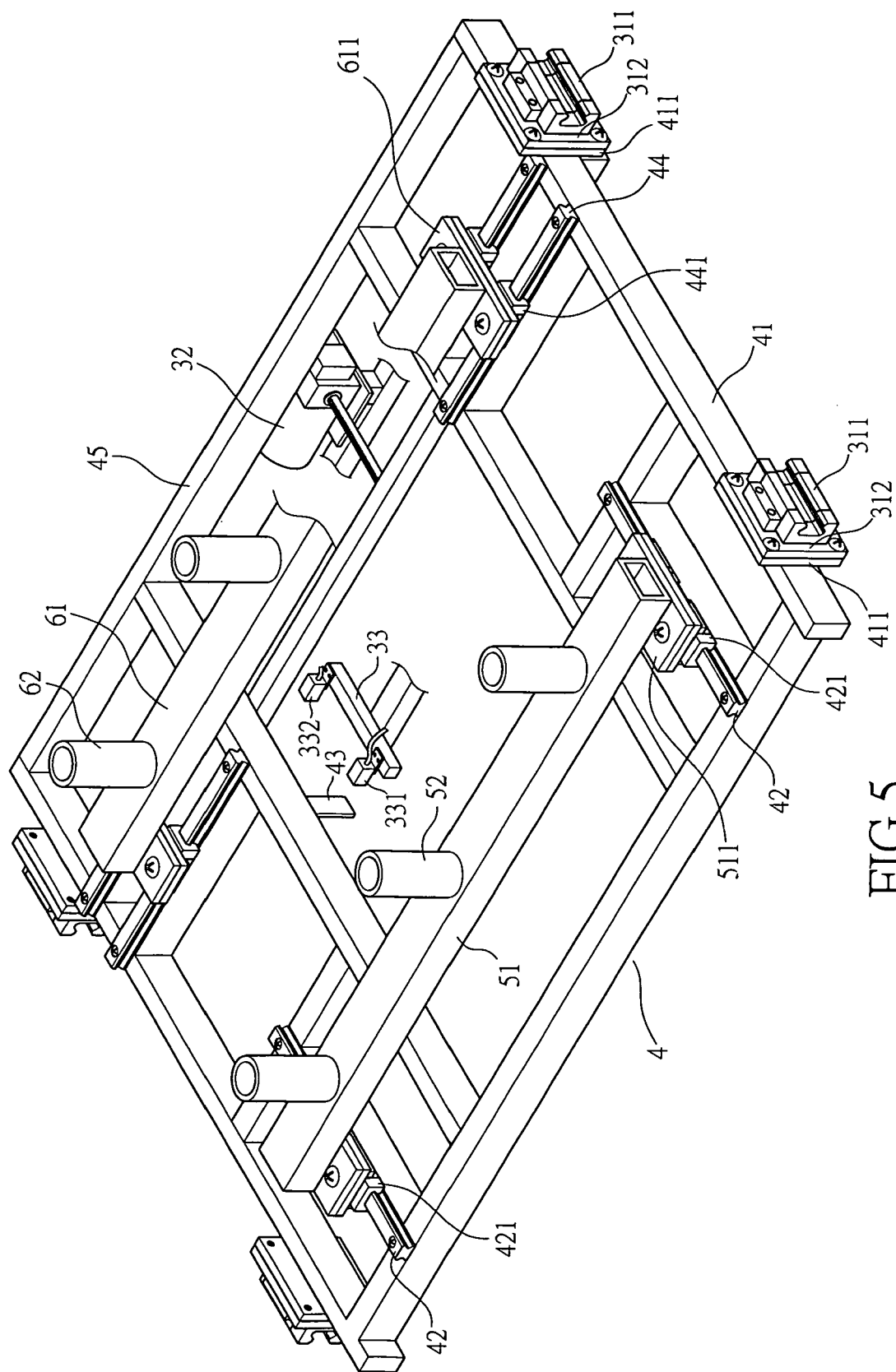


FIG. 5

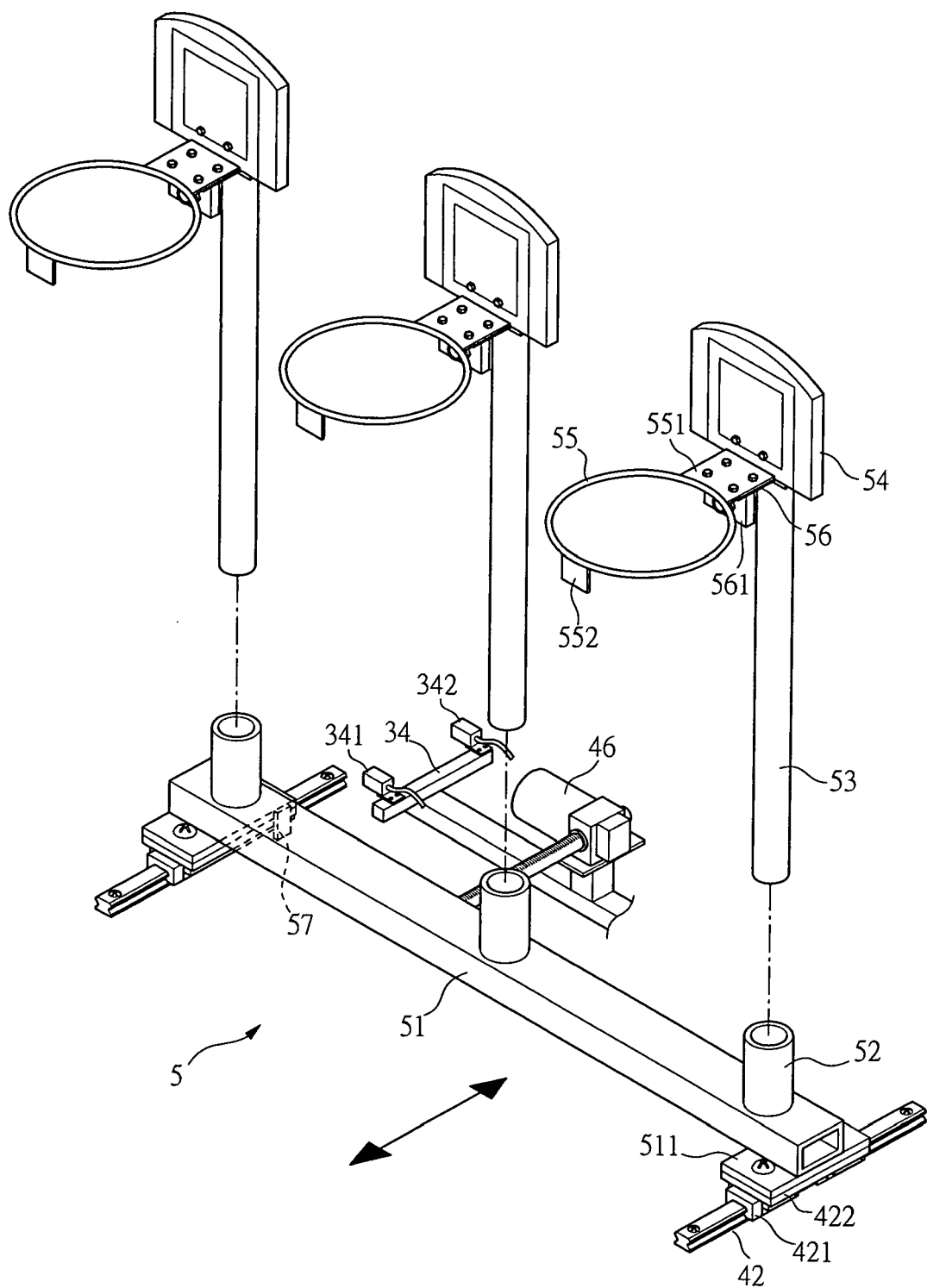


FIG.6

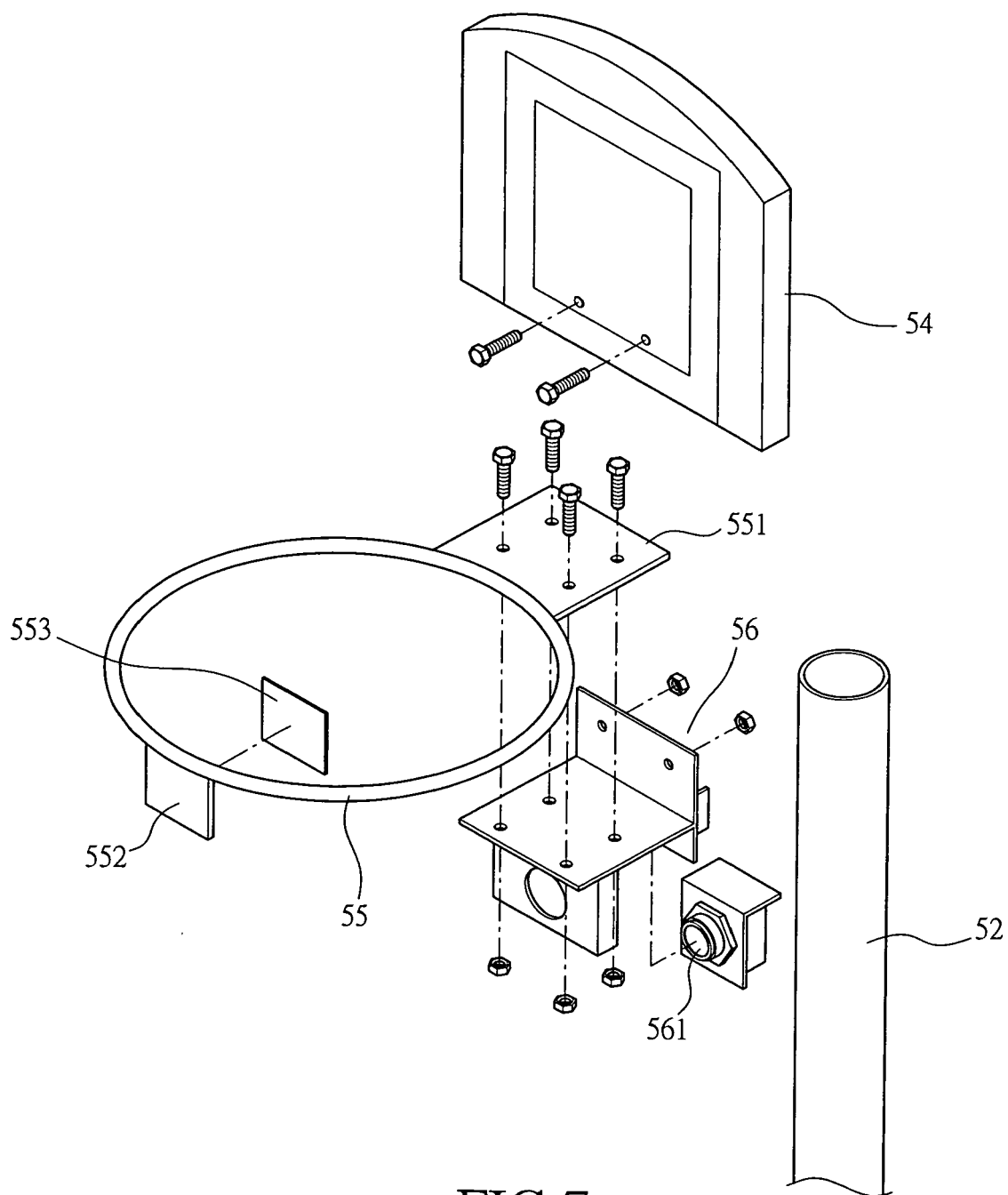
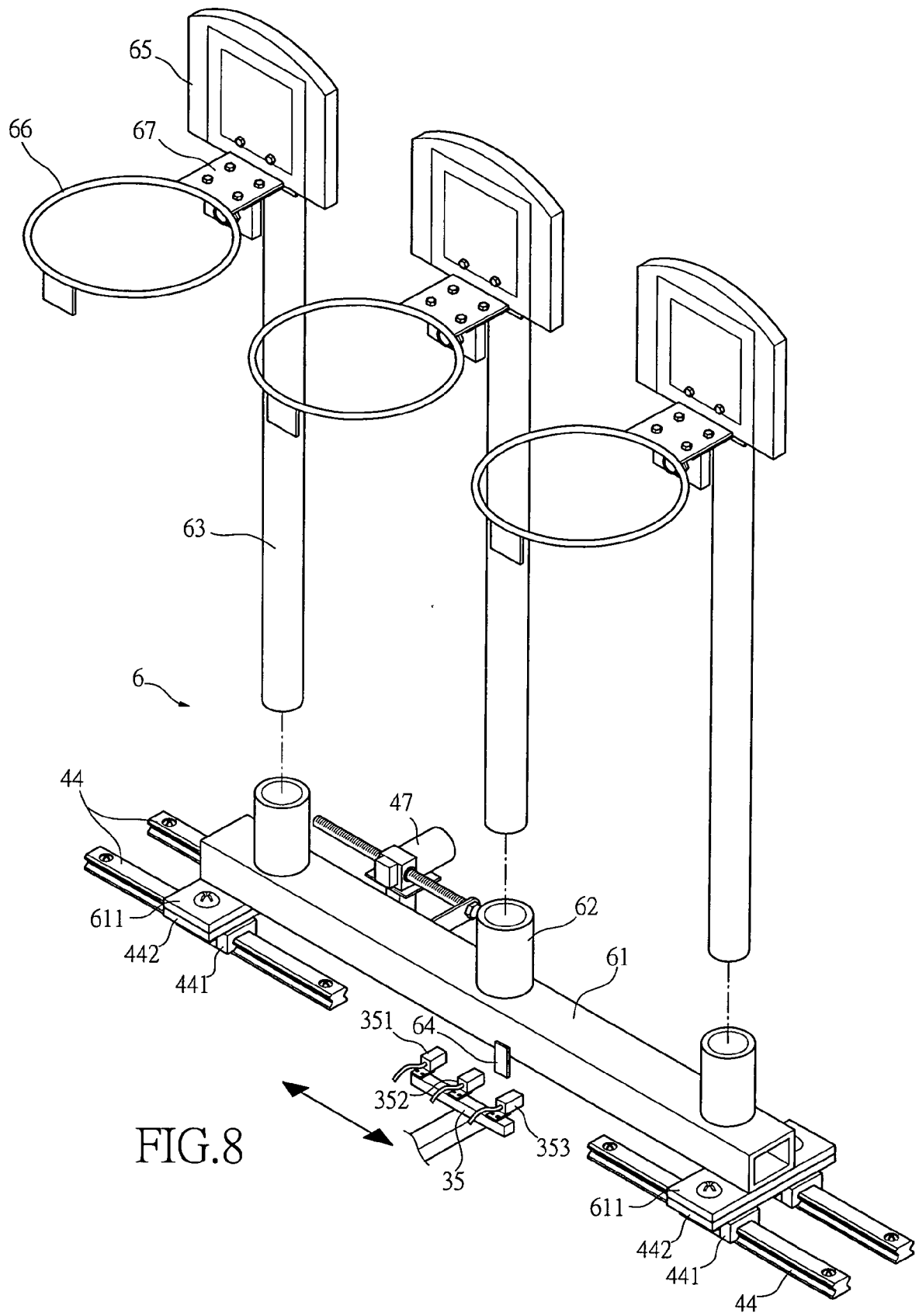


FIG.7



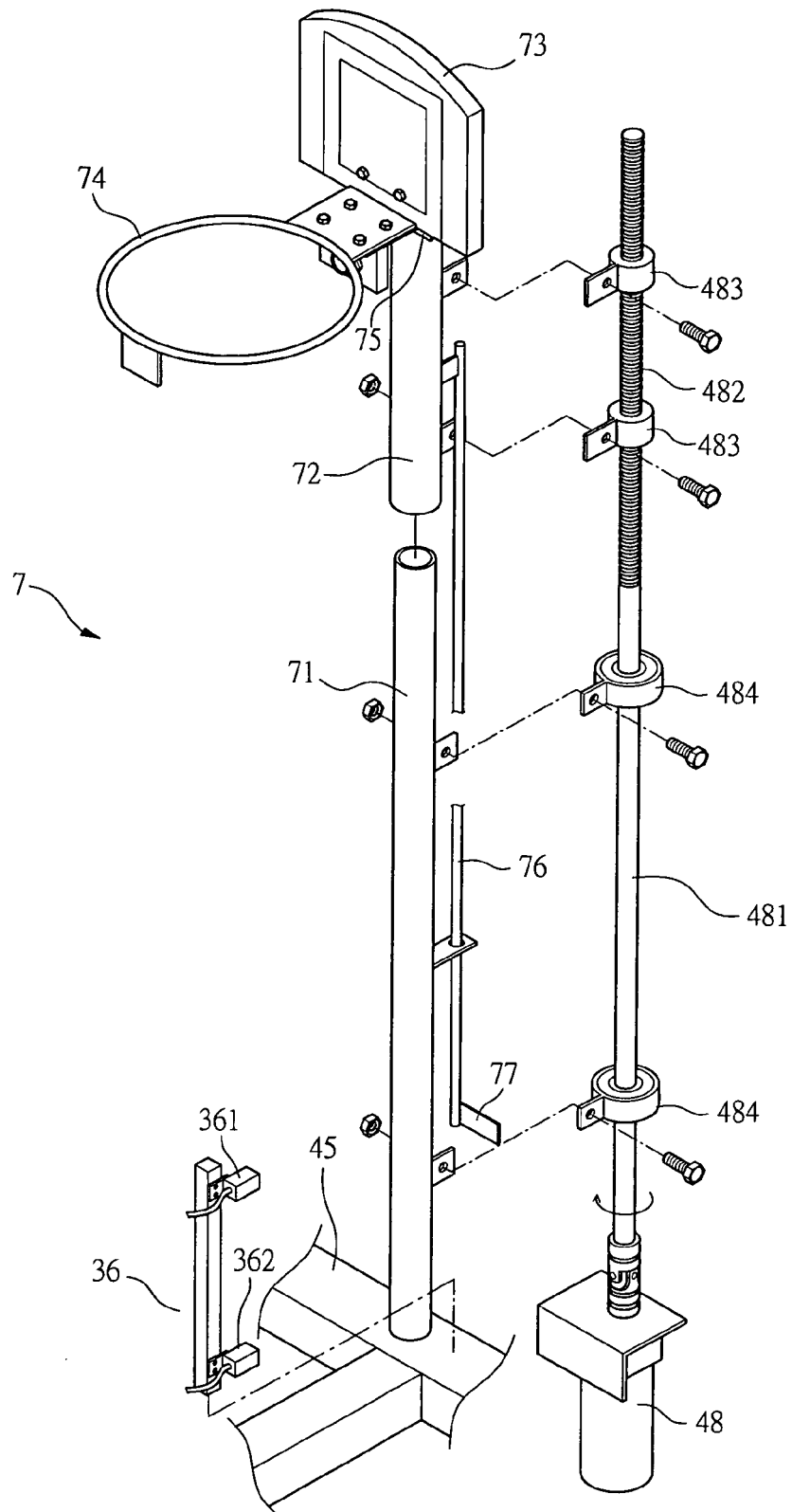


FIG.9

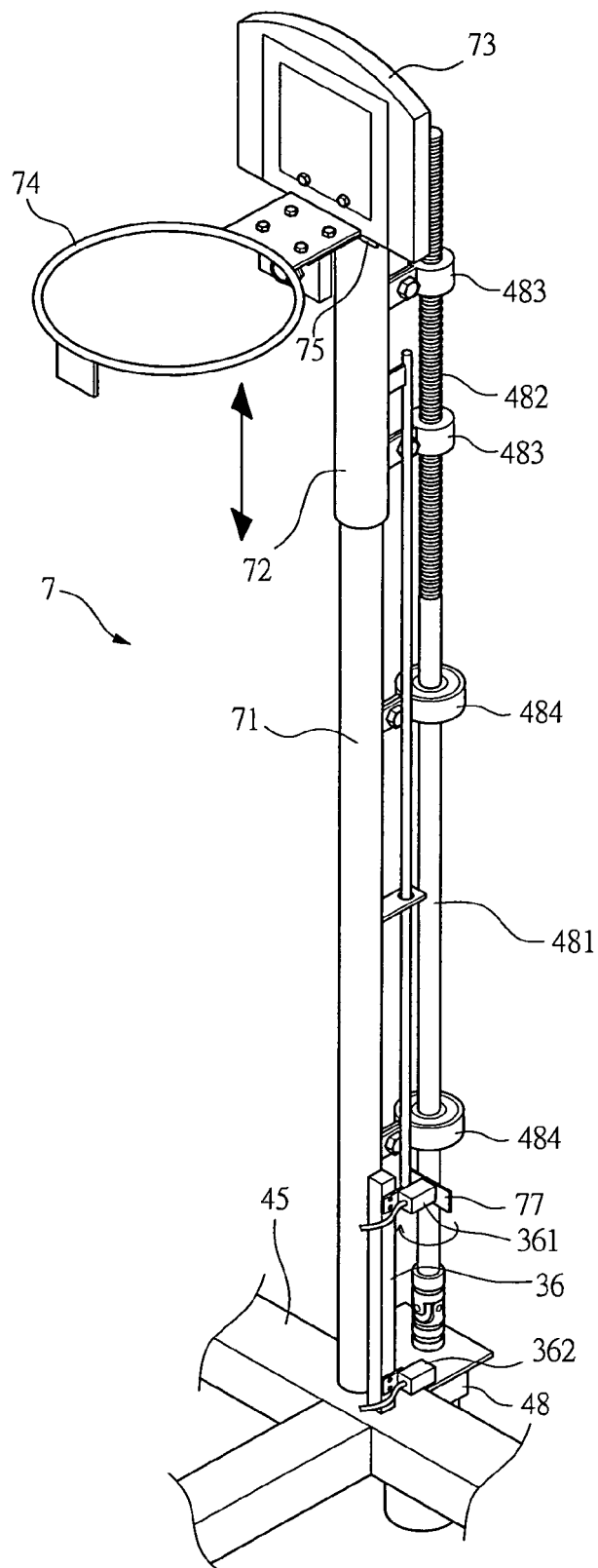


FIG.10



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 3559

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 December 2007	Examiner Levert, Corinne
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 01 3559

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21-12-2007

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